

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

MODIANO & ASSOCIATI
Attn. Modiano, Guido
Via Meravigli, 16
I-20123 Milano
ITALY

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 38874/GM/Ip	Date of mailing (day/month/year) 21/09/2004
International application No. PCT/EP2004/003111	International filing date (day/month/year) 24/03/2004
Applicant MUCCINI, Michele	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders


Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer John Bakvis
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 38874/GM/Ip	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2004/003111	International filing date (day/month/year) 24/03/2004	(Earliest) Priority Date (day/month/year) 28/03/2003
Applicant MUCCINI, Michele		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

ORGANIC ELECTROLUMINESCENCE DEVICES

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 3

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2004/003111

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

An electroluminescence generating device comprising

- e. a channel of organic semiconductor material (4), said channel being able to carry both types of charge carriers, said charge carriers being electrons and holes;
- f. an electron electrode (6), said electron electrode being in contact with said channel and positioned on top of a first side of said channel layer or within said channel layer, said electron electrode being able to inject electrons in said channel layer;
- g. a hole electrode (7), said hole electrode being spaced apart from said electron electrode, said hole electrode being in contact with said channel and positioned on top of said first side of said channel layer or within said channel layer, said hole electrode being able to inject holes into said channel;
- h. a control electrode (2) positioned on said first side or on a second side of said channel;

whereby light emission (7) of said electroluminescence generating device can be acquired by applying an electrical potential difference between said electron electrode (6) and said hole electrode (5).

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP2004/003111

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01L51/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 10, 10 October 2002 (2002-10-10) - & JP 2002 164166 A (CANON INC), 7 June 2002 (2002-06-07) abstract; figures 3-5	1-7, 9, 17, 18, 21-28
Y		8, 10, 12-16, 19, 20
Y	WO 02/102117 A (PARK BYOUNG CHOO) 19 December 2002 (2002-12-19) page 15, lines 14-17	8
A		1-28
Y	US 2002/182307 A1 (GAO ZHI-QIANG ET AL) 5 December 2002 (2002-12-05) paragraphs '0007!, '0012!, '0045! ----- -/--	10

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

10 September 2004

Date of mailing of the international search report

21/09/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Faou, M

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	FR 2 758 431 A (COMMISSARIAT ENERGIE ATOMIQUE) 17 July 1998 (1998-07-17) page 3, lines 4-13 - page 5, lines 15-25; figure 2 figure 4	12-14
Y	IEEE ELECTRON DEVICE LETTERS, vol. 23, no. 10, 10 October 2002 (2002-10-10), pages 618-620, XP002290060 page 618	15,16
Y	WO 00/36664 A (KOYAMA TOMOKO ; KANEKO TAKEO (JP); SEIKO EPSON CORP (JP)) 22 June 2000 (2000-06-22) figure 1 page 2, lines 4-11 - page 3, lines 25-27 page 4, lines 1-4	19
Y	US 6 091 197 A (SUN DECAI ET AL) 18 July 2000 (2000-07-18) column 1, lines 21-26 column 1, lines 37-55; figure 1	20
A	WO 01/01452 A (PENN STATE RES FOUND) 4 January 2001 (2001-01-04) figure 1	1-28
A	US 5 977 718 A (CHRISTENSEN ALTON O) 2 November 1999 (1999-11-02) column 4, lines 24-67; figure 1	1-28
A	US 2002/167280 A1 (ODA ATSUSHI ET AL) 14 November 2002 (2002-11-14) paragraph '0061!; figure 1	1-28

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/003111

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2002164166	A	07-06-2002	NONE	
WO 02102117	A	19-12-2002	EP 1402758 A1	31-03-2004
			JP 2004522279 T	22-07-2004
			WO 02102117 A1	19-12-2002
			KR 2002094999 A	20-12-2002
			TW 529318 B	21-04-2003
			US 2004108807 A1 *	10-06-2004
US 2002182307	A1	05-12-2002	NONE	
FR 2758431	A	17-07-1998	FR 2758431 A1	17-07-1998
			EP 0954884 A1	10-11-1999
			WO 9831057 A1	16-07-1998
WO 0036664	A	22-06-2000	JP 2000182781 A	30-06-2000
			JP 2000200687 A	18-07-2000
			JP 2000200679 A	18-07-2000
			JP 2000200688 A	18-07-2000
			EP 1074054 A2	07-02-2001
			WO 0036664 A2	22-06-2000
			US 6704335 B1 *	09-03-2004
US 6091197	A	18-07-2000	NONE	
WO 0101452	A	04-01-2001	AU 7824600 A	31-01-2001
			WO 0101452 A2	04-01-2001
			US 6720572 B1 *	13-04-2004
US 5977718	A	02-11-1999	NONE	
US 2002167280	A1	14-11-2002	JP 2002343578 A	29-11-2002
			CN 1386039 A	18-12-2002